



AdiaVent®.

Air recirculation unit for cooling closed spaces.

Design Handbook

**Hoval**

AdiaVent®

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Design Handbook

Subject to technical alterations.

Art.Nr. 4 207 885

09/2008

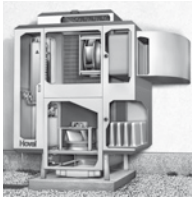
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## Safety

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## AdiaVent® ADV

Air recirculation unit for cooling closed spaces

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## Safety



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# Safety

## 1 Symbols



### Caution

This symbol warns against risks of injury. Please heed all instructions designated by this symbol to prevent injuries and/or death.



### Attention

This symbol warns against risks of property damage. Please heed the respective instructions to prevent risk of damage to the unit and its functions.



### Notice

This symbol denotes information about the economic use of the equipment or special tips.

## 3 Information for a user manual

According to the accident prevention regulations of some countries, the operator of equipment must meet certain requirements for the prevention of occupational accidents and instruct the operating personnel as to the hazards that may occur and how to prevent them. This can be done with the help of the User Manual.

In addition to national regulations for accident prevention and environmental protection, a user manual should also include the most important items of the operating instructions.

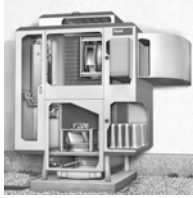
## 2 Operational safety

AdiaVent® units are state of the art and safe to operate. Nevertheless, hazards may emanate from the units if they are used incorrectly or not used as intended. Therefore:

- Please read the operating instructions before unpacking, installing, commissioning and before maintaining the equipment.
- Store the operating instructions so that they are easily accessible.
- Observe all appropriate informational and warning signs.
- Rebuilding or making changes to the unit on one's own authority are not permitted.
- Follow the local safety and accident prevention regulations at all times.
- AdiaVent® units may be installed, operated and maintained only by trained and instructed specialists. Specialists as defined by these operating instructions are those persons who, based on their training, knowledge and experience as well as their knowledge of the relevant regulations and guidelines, can carry out the work assigned to them and recognize potential hazards.







## AdiaVent® ADV

Air recirculation unit for cooling closed spaces

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# Use, construction and operation

## 1 Use

### 1.1 Intended use

AdiaVent® units are for high spaces. Also included under intended use are compliance with the installation, commissioning, operating and maintenance provisions (operating instructions).

Any usage over and above this use is considered to be not as intended. The manufacturer is not responsible for any resulting damage.

### 1.2 User group

AdiaVent® units may only be installed, operated and maintained by specialist personnel well acquainted with them and the possible risks.

The design handbook is intended for English-speaking engineers and technicians, as well as specialists in building, heating and ventilation technology.

### 1.3 Hazards

AdiaVent® units are state-of-the-art and of safe operation. Despite all taken measures, there are potential, non-obvious risks, such as:

- Dangers when working with the electrical systems
- Parts (e.g. tools) can fall down below when working on the ventilation unit
- Dangers from working on the roof
- Damage to devices or components due to lightning
- Water ingress in the AdiaVent® system, if doors and/or ports are not properly closed.
- Malfunctions as a result of defective parts

## 2 Construction and operation

The AdiaVent® ADV system is intended for the cooling of large high spaces (e.g. factory halls, industrial halls, supermarkets, sport arenas etc.). It fulfils the following functions:

- Cooling (adiabatic)
- Recirculation
- Optional: mixed air operation
- Air filtration

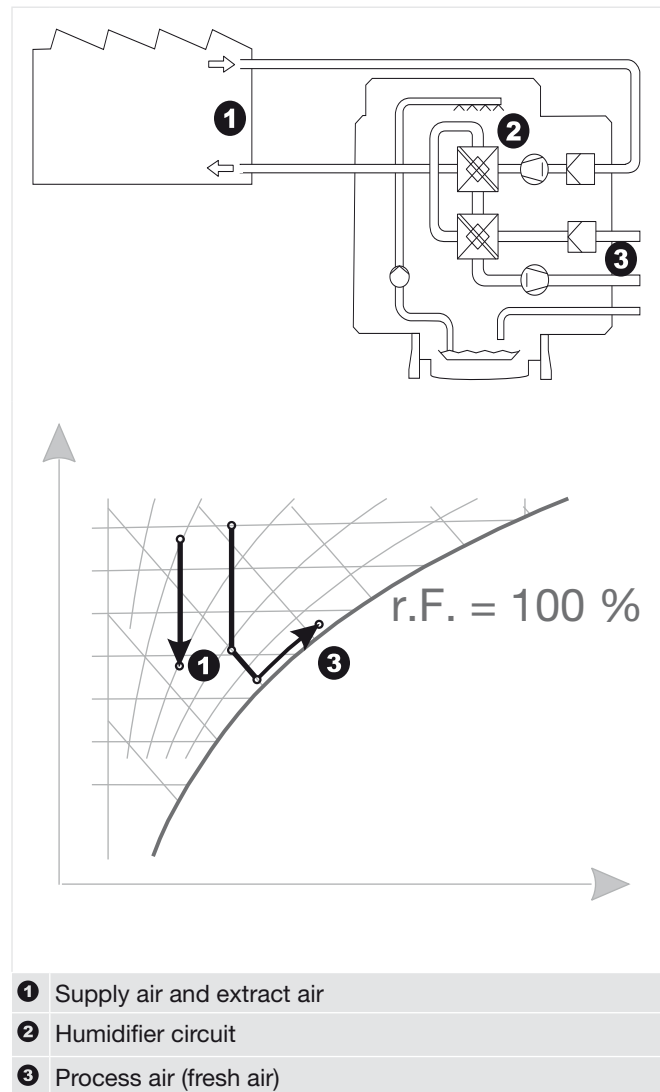


Fig. B2-1: Operation

The AdiaVent® ADV suctions the extract air from the room and cools it indirectly adiabatic through the plate heat exchanger. The cooled and filtered supply air is blown back into the hall.

# Construction and operation



## Notice

Indirect adiabatic cooling – The fresh air is humidified and indirectly cools the supply air via a plate heat exchanger.

The supply air is not humidified – contamination can thus be ruled out completely.

Fresh air is used for the cooling of the room air. The fresh air is drawn in through a filter and precooled in the first plate heat exchanger; this causes the boundary temperature of adiabatic cooling to sink. The fresh air is then blown downwards into the first plate heat exchanger (cooler) and then into the second plate heat exchanger (precooler). The fresh air and the plate heat exchangers are sprayed with specially designed spray nozzles and cooled by the evaporation of the water. After the precooler, the fresh air is blown back into the exterior.

## 2.1 Unit construction

The AdiaVent® ADV system is usually installed on a facade or on a roof. It requires:

- a power supply
- a water supply and drainage
- extract and supply air ducts

# Construction and operation

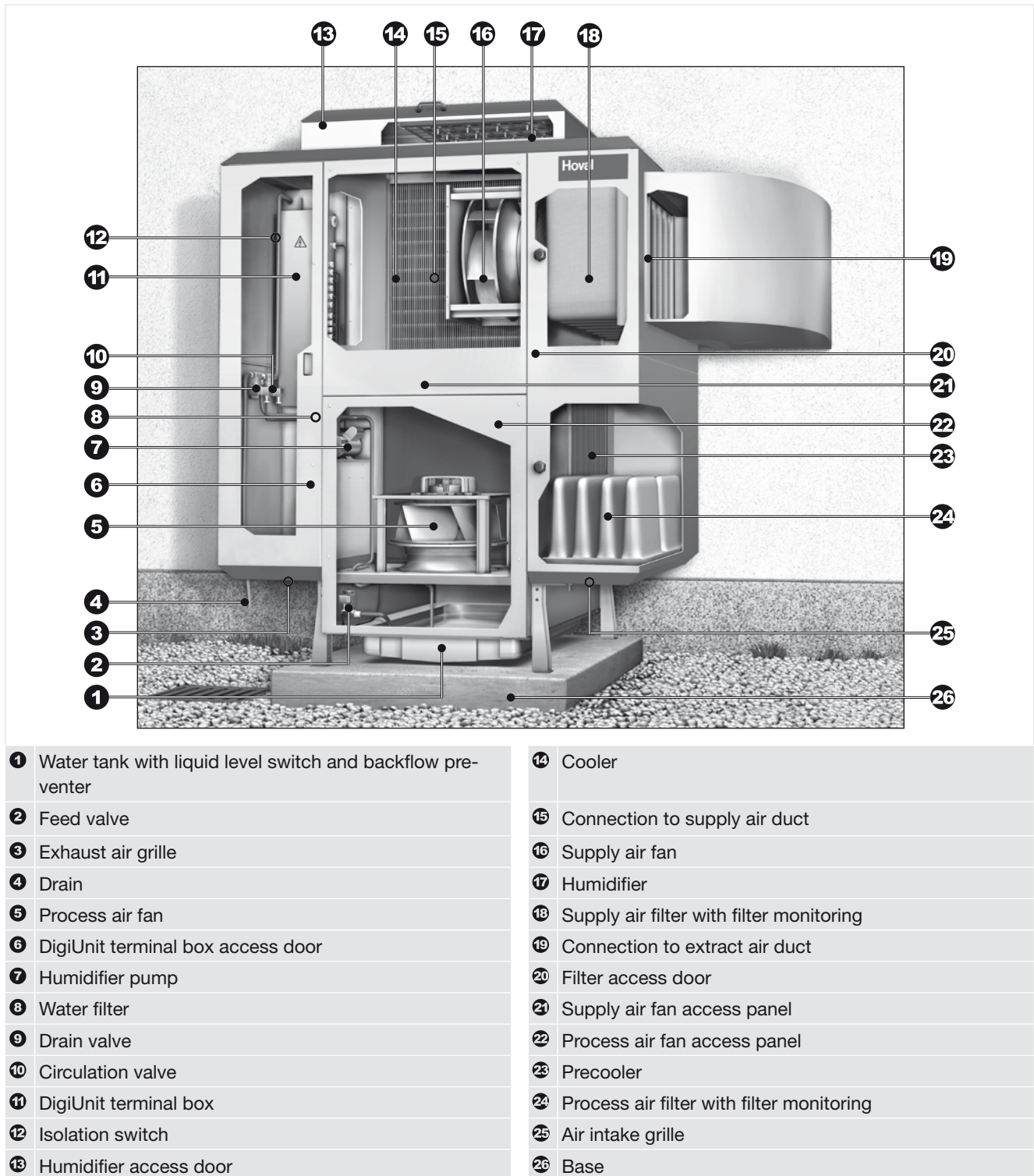
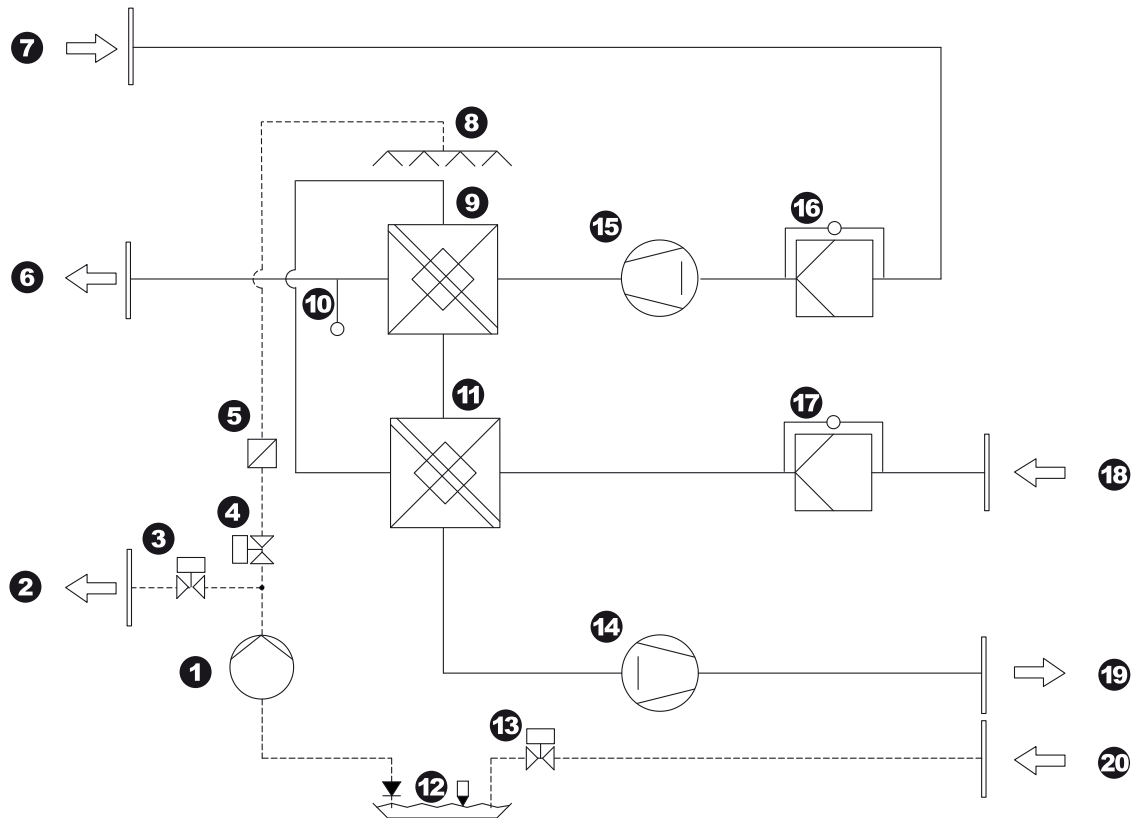


Fig.B2-2: Construction of AdiaVent® ADV

# Construction and operation



❶ Humidifier pump

❷ Drain

❸ Drain valve

❹ Circulation valve

❺ Water filter

❻ Supply air

❼ Extract air

❽ Humidifier

❾ Cooler

❿ Supply air sensor

⓫ Precooler

⓬ Water tank with liquid level switch and backflow preventer

⓭ Feed valve

⓮ Process air fan

⓯ Supply air fan

⓰ Supply air filter with filter monitoring

⓱ Process air filter with filter monitoring

⓲ Fresh air (process air)

⓳ Exhaust air

⓴ Water supply

Fig.B2-3: Operational diagram of AdiaVent® ADV

# Construction and operation

## 2.2 Operating modes

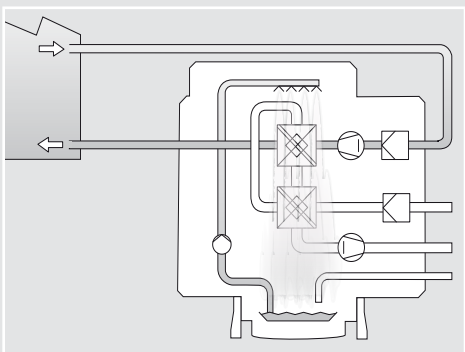
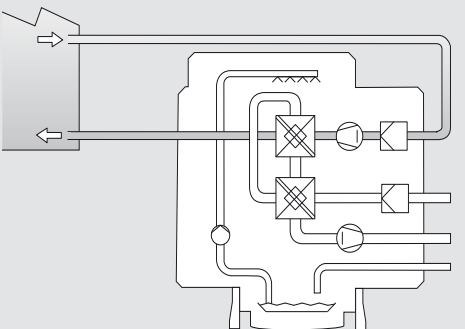
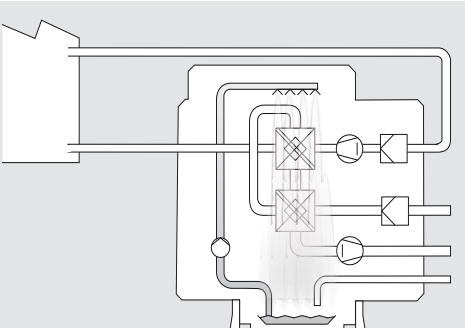
AdiaVent® ADV operates in the following modes:

- Off
- Cooling
- Night cooling summer
- Cleaning

The DigiNet control system regulates these operating modes automatically for each control zone according to the switching schedule.

In addition, you can:

- manually switch the operating mode of a control zone,
- switch each individual AdiaVent® ADV to the modes Off, Cooling, Night cooling summer, or Cleaning.

Code <sup>1)</sup>	Operating mode	Use	Layout
OFF	<b>Off</b> The fans are turned off. Frost protection remains active. There is no room temperature control.	if AdiaVent® ADV is not needed	
COOL	<b>Cooling</b> The AdiaVent® ADV blows cool and filtered air into the room and suctions the warm extract air. Cooling capacity is regulated according to the cooling demand. The room temperature set value day is active.  Process air fan..... on <sup>*)</sup> Supply air fan ..... on <sup>*)</sup> Humidifier pump.....on <sup>*)</sup>  <sup>*)</sup> according to temperature conditions	during room use	
NCS	<b>Night cooling summer</b> The AdiaVent® ADV blows cool and filtered air into the room and suctions the warm extract air. The humidifier pump is not in operation. The cooling capacity is not regulated. The room temperature set value night is active.  Process air fan..... on <sup>*)</sup> Supply air fan ..... on <sup>*)</sup> Humidifier pump .....off  <sup>*)</sup> according to temperature conditions	for energy-saving cooling during the night	
CLN	<b>Cleaning</b> The operating mode Cleaning washes out and sterilises the humidifier circuit. No cooling takes place.  Process air fan..... off Supply air fan ..... Off Humidifier pump.....on Time required .....80 min	for the cleaning and sterilisation of the humidifier circuit	

<sup>1)</sup> This code identifies the operating mode in the DigiNet control system (see Part D 'Control systems').

Table B2-1: Operating modes

## Technical data: Unit type reference, air distribution, electric supply connection, hydraulics, application limits

### 3 Technical data

Unit type reference							
				ADV	-	6	/ DN5 / ...
<b>Unit type</b>							
AdiaVent®							
<b>Unit size</b>							
6							
<b>Control</b>							
DN5 Design for DigiNet 5							
<b>Options</b>							
AUK Fresh air box							
UVL Ultraviolet lamp							
ZF5 Supply air filter F5							
AL-ADV Paint finish							

Table B3-1: Unit type plate

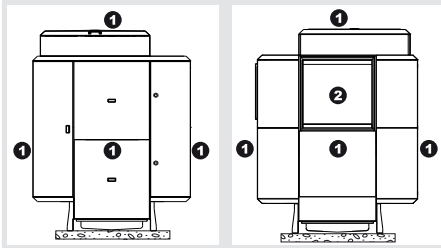
Unit type				ADV -6
Air distribution	Nominal air flow rate		m³/h	6080
	in case of external pressure drop		Pa	50
	<ul style="list-style-type: none"> <li>Supply air and extract air duct</li> <li>Diffuser air outlet</li> </ul>			
Electric supply connection	Supply voltage		V AC	3 x 400
	Permitted voltage tolerance		%	± 10
	Frequency		Hz	50
	Current consumption	max.	A	6.5
	Power consumption	max.	kW	3
Filter	Supply air			G4
	Process air			F5
Hydraulics	Water consumption	max.	l/h	30
Application limits	Fresh air temperature	max.	°C	50
	Operating pressure (hydraulic system)	max.	bar	8
	pH value	max.		8

Table B3-2: Technical data



# Technical data: Sound levels, air flow rate in case of additional pressure drop

Unit type		ADV-6	
Position		1	2
Sound pressure level (5 m distance)	dB(A)	57.9	-
Total sound power level	dB(A)	79.9	79.1
Octave sound power level	63 Hz dB	82.8	87.0
	125 Hz dB	84.8	89.0
	250 Hz dB	75.0	80.3
	500 Hz dB	73.3	77.7
	1000 Hz dB	71.8	72.3
	2000 Hz dB	72.4	59.9
	4000 Hz dB	73.1	51.7
	8000 Hz dB	71.5	42.8



1 with semicircular radiation in low-reflection surroundings  
2 in the supply air duct

Table B3-3: Sound levels

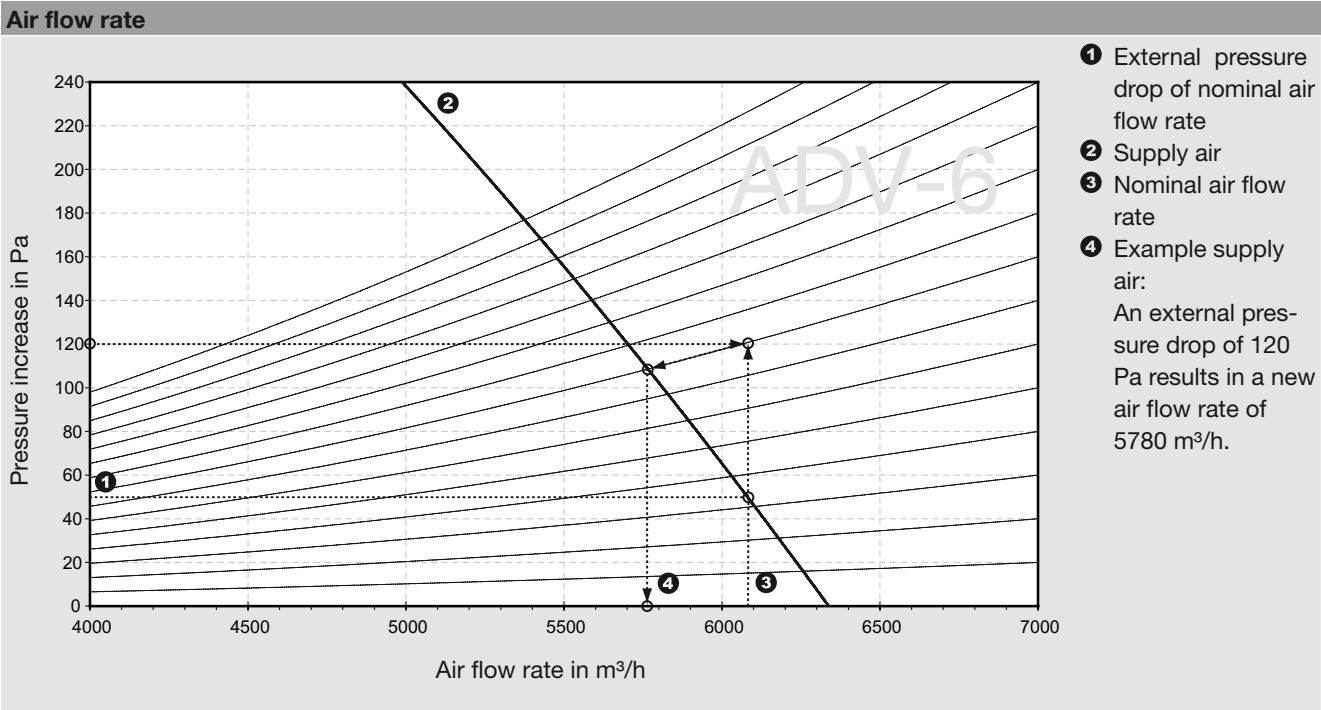


Diagram B3-1: Air flow rate for additional pressure drop

## Technical data: Cooling capacities, supply air temperature, minimum distances

		Temperature and relative humidity of fresh air													
		26			28			30			32			°C	
		30	40	50	30	40	50	30	40	50	30	40	50	%	
Temperature of the extract air	24	16.8	14.0	11.0	14.7	11.3	7.8	12.3	8.6	4.5	9.9	5.4	0.7	kW	
		15.8	17.1	18.6	16.8	18.4	20.2	17.9	19.8	21.8	19.2	21.4	23.7	°C	
	26	19.2	16.9	14.3	17.6	14.6	11.5	15.5	12.2	8.6	13.3	9.3	5.1	kW	
		16.6	17.7	19.0	17.4	18.8	20.4	18.4	20.0	21.8	19.5	21.4	23.5	°C	
	28	21.3	19.4	17.2	19.9	17.4	14.7	18.2	15.3	12.2	16.3	12.8	9.1	kW	
		17.6	18.5	19.6	18.2	19.5	20.8	19.1	20.5	22.0	20.0	21.7	23.5	°C	
	°C		Cooling capacity, supply air temperature												

Table B3-4: Cooling capacity and supply air temperature at: nominal air flow rate of 6080 m³/h  
atmospheric pressure 1013 mbar  
density of extract air 1.2 kg/m³

<b>Unit type</b>				<b>ADV-6</b>	
Unit clearance	X	min.	m	4	<b>1</b> The intake and exhaust air grille must be freely accessible. <b>2</b> Allow a free space of about 1.5 m for service and maintenance
Height of wall	H	min.	m	3	
Distance from wall	W	min.	m	1	

Table B3-5: Minimum distances

Technical data: Dimensional drawing

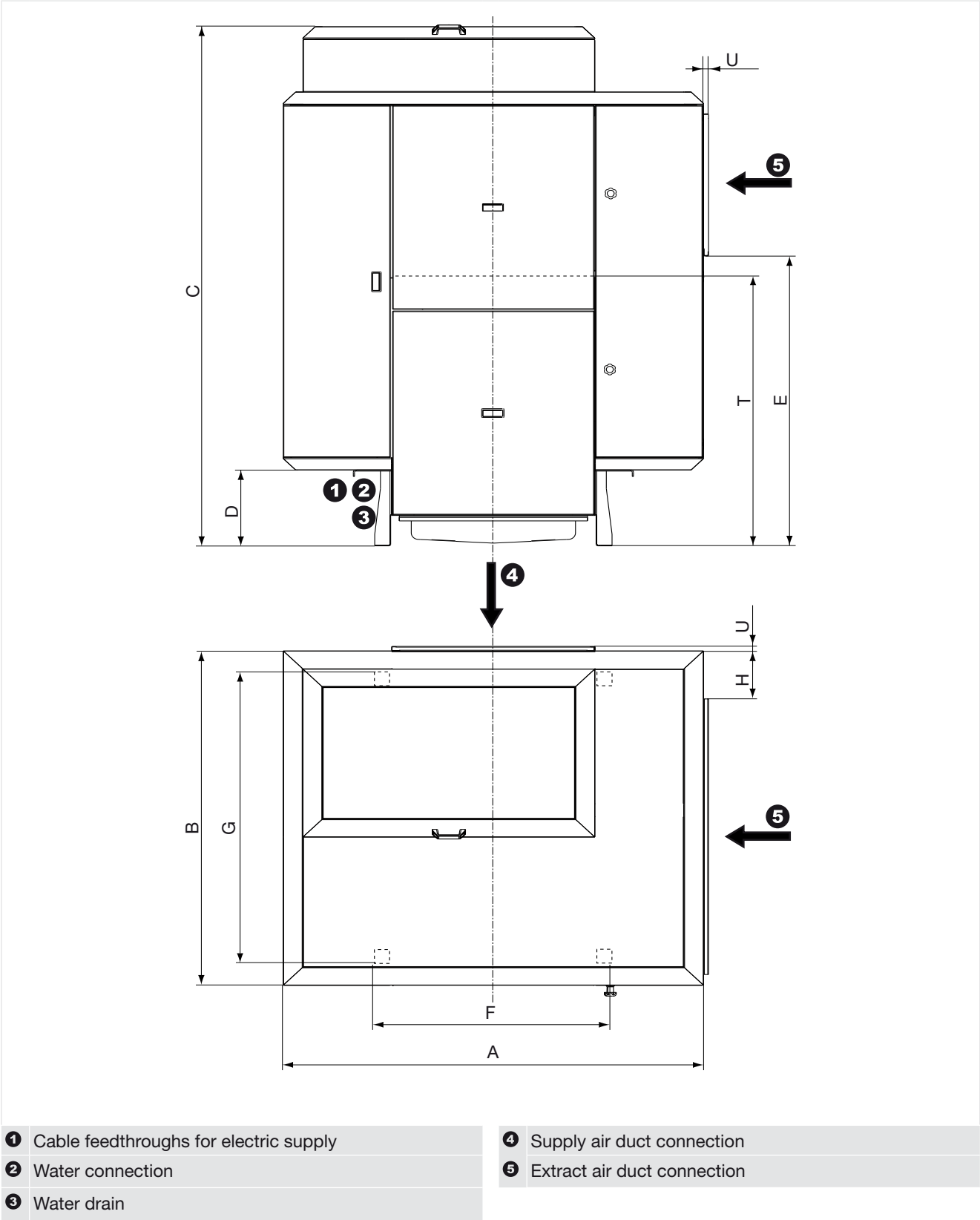


Fig B3-1: Dimensional drawing

## Technical data: Dimensions and weights

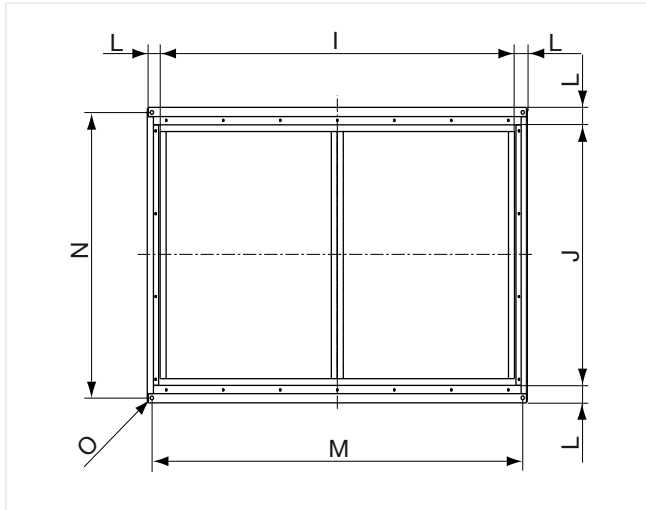


Fig B3-2: Hole pattern for supply air duct connection - view 4

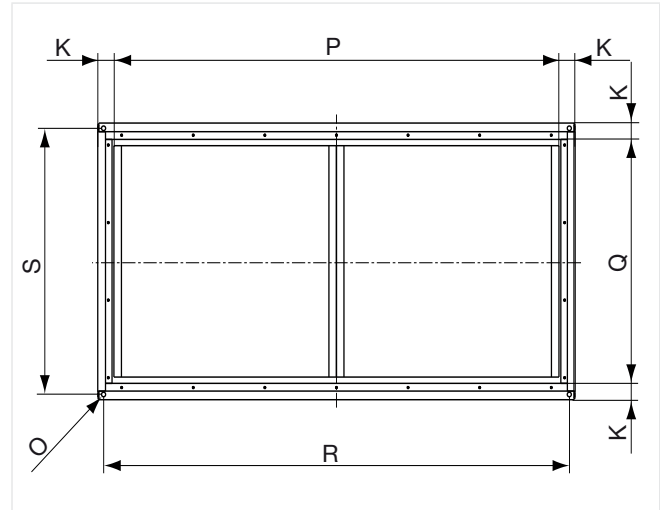


Fig B3-3: Hole pattern for extract air duct connection - view 5

Unit type			ADV-6
Dimensions	A	mm	1766
	B	mm	1533
	C	mm	2391
	D	mm	348
	E	mm	1326
	F	mm	997
	G	mm	1398
	H	mm	217
	I	mm	785
	J	mm	805
	K	mm	38
	L	mm	35
	M	mm	830
	N	mm	850
	O		M8 (Blind rivet nut)
	P	mm	1194
	Q	mm	582
	R	mm	1239
	S	mm	635
	T	mm	1195
	U	mm	21
Water connection	2		Rp 3/8 (female)
Water drain	3	mm	13
Weight		kg	520

Table B3-6: Dimensions and weights

# Design example

## 4 Design example

### Original data

- sensible cooling load  
To be considered:
  - transmitted heat
  - solar radiation
  - internal heat sources (machines, lighting, etc.)
- standard fresh air conditions
- desired room temperature (in the occupied area)
- extract air temperature <sup>1)</sup>
- external pressure drop (applied to the nominal air flow rate)
- additional pressure drop

<sup>1)</sup> The extract air temperature is generally higher than the temperature in the occupied area. This is due to the temperature stratification which is inevitable in high spaces.

### Determination of air flow rate for the duct system and the diffuser air outlets

The air flow rate of the supply air depends on the external pressure drop of the

- supply and extract air ducts
- diffuser air outlets.

### Determine cooling capacity $Q_i$ for each AdiaVent® unit

Depending on

- the extract air temperature and
- the standard fresh air conditions

the cooling capacity of the AdiaVent® units is determined.



#### Notice

The cooling capacity decreases in a linear manner with the air flow rate.

$$Q_i = Q_n \cdot \frac{V_i}{V_n}$$

$V_i$  = Air flow rate in m³/h as a function of additional pressure drop

$V_n$  = Nominal air flow rate in m³/h

$Q_n$  = Cooling capacity according to Table B3-4: 'Cooling capacity and supply air temperature' in kW

### Required number of units $n_{req}$

$$n_{req} = \frac{Q_K}{Q_i}$$

$Q_K$  = Total required cooling capacity in kW

$Q_i$  = Cooling capacity per AdiaVent® unit in kW

### Example

Cooling load 190 kW

Standard fresh air conditions 28 °C / 30%

Desired room temperature 24 °C

Extract air temperature 28 °C

External pressure drop 120 Pa

From the diagram B3-1: 'Air flow rate' there results an air flow rate of 5780 m³/h, depending on the pressure drop

From Table B3-4: 'Cooling capacity and supply air temperature' there results a cooling capacity of 19.8 kW referred to a nominal air flow rate of 6080 m³/h.

$$Q_i = 19.8 \cdot \frac{5780}{6080}$$

$$Q_i = 18.8$$

$$n_{req} = \frac{190}{18.8}$$

$$n_{req} = 10.1$$

Selected: 10 ADV-6 units.

# Options, control systems

## 5 Options

AdiaVent® ADV units can be adapted to the specific requirements of each project by means of a range of options. A detailed description of all optional components is found in Part C 'Options' of this design handbook.

<b>Fresh air box AUK</b>	for use as air mixing unit
<b>Ultraviolet lamp UVL</b>	for additional sterilisation of the water
<b>Paint finish AL-ADV</b>	paint finish as desired
<b>Aftercooler</b>	for constant cooling capacity
<b>Supply air filter ZF5</b>	to optimise the filtering of the supply air

## 6 Control system

AdiaVent® ADV are controlled by the Hoval DigiNet system. This control system, developed specifically for Hoval indoor climate systems, provides the following advantages:

- DigiNet utilises the full potential of the decentralised systems. It controls each ventilation unit individually, depending on local conditions.
- DigiNet allows for maximum flexibility of operation with respect to the control zones, unit combinations, operating modes and operating times.
- The ready-to-connect units with integrated control components are easy to design with and install.
- Commissioning of the DigiNet is quick and easy thanks to the plug & play components and pre-addressed control modules.

A detailed description of the DigiNet is found in Part D 'Control System' of this design handbook.

# Transport and installation

## 7 Transport and installation

### 7.1 Assembly



#### Caution

Risk of injury from incorrect handling. Transport and installation work may only be done by specialists!

- The units can be mounted on the facade or on the roof.
- A fork lift will be required to mount the unit on the facade.
- In order to mount the unit on the roof a crane or a helicopter and 4 hoisting slings (length approx. 10 m) are required.  
If steel cables or chains are used, the AdiaVent® unit must be adequately protected.
- Supply and extract air ducts are required.
- Air distribution within the building is necessary.
- Provisions for openings in the walls for the supply and extract air ducts must be made.
- Make sure that the base corresponds with the specifications in Part E 'System design'.
- Observe the installation instructions provided.

### 7.2 Hydraulic installation

- Design the water piping with appropriate bolted joints which can be loosened, tension-free and vibration-free.
- Provide a water filter (filter fineness 100 µm) in the water supply.

### 7.3 Electrical installation



#### Caution

Danger from electric current. The electrical installation is to be carried out only by a qualified electrician!

- Observe all applicable regulations (e.g. EN 60204-1).
- For long supply lines, select cable diameters in accordance with the technical regulations.
- Electrical installation to be carried out according to wiring diagram.
- Install the system bus for the control system separately from the mains cable.
- Make sure there is onsite overload protection equipment for the mains connection line of the zone control panel (short circuit resistance 10 kA).

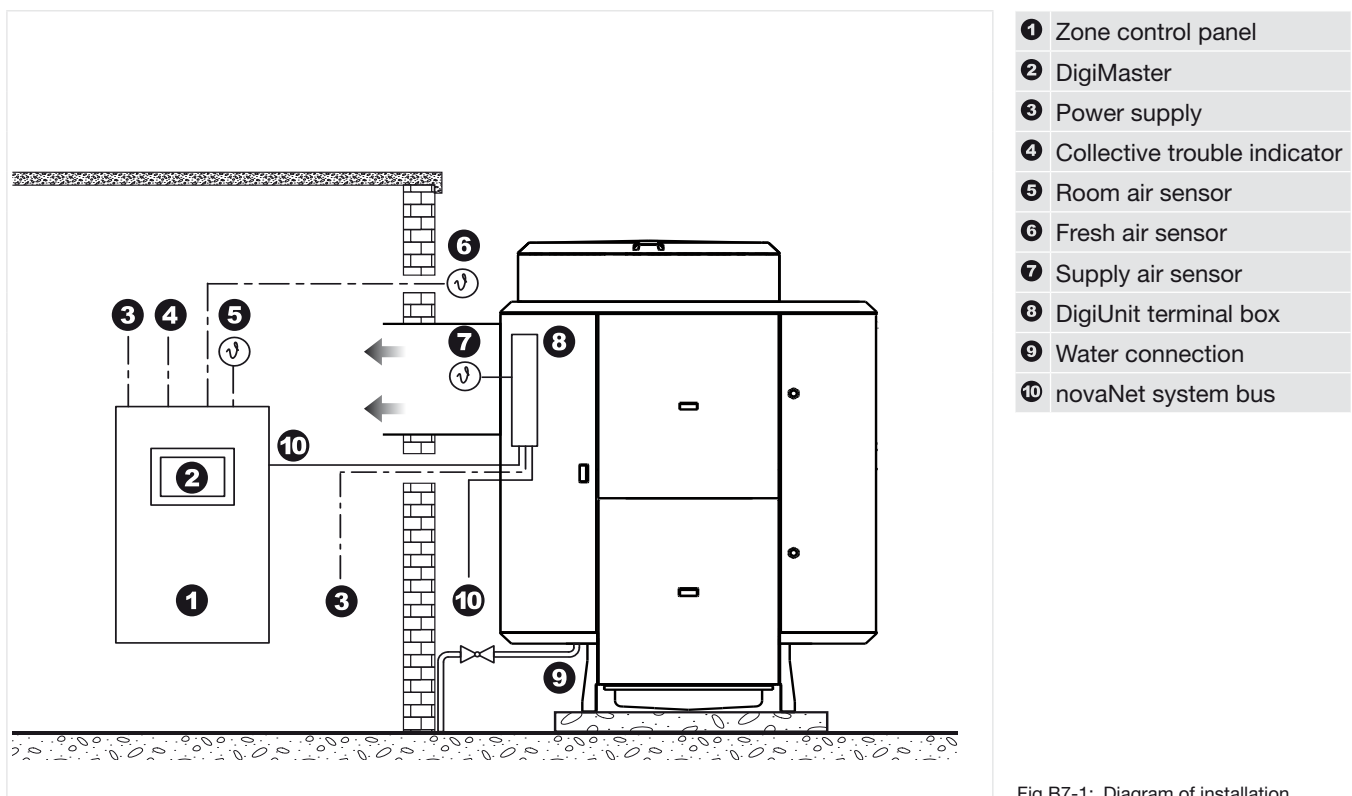


Fig B7-1: Diagram of installation



# Transport and installation

B

	Description	Voltage	Cable	Option	Comment
DigiUnit terminal box	Power supply	3 x 400 V	5 x 2.5 mm <sup>2</sup>		
	novaNet system bus	12 V	2 x 0.16 mm <sup>2</sup>		for bus cable specifications, see Part D, Ch. 2.4
	Supply air sensor	10 V	2 x 1.5 mm <sup>2</sup>		max. 170 m
Zone control panel 3-phase	Power supply	3 x 400 V	5 x ... mm <sup>2</sup>		
	novaNet system bus	12 V	2 x 0.16 mm <sup>2</sup>		for bus cable specifications, see Part D, Ch. 2.4
	Room air sensor	10 V	2 x 1.5 mm <sup>2</sup>		max. 170 m
	Fresh air sensor	10 V	2 x 1.5 mm <sup>2</sup>		max. 170 m
	Enable cooling	volt-free max. 230 V	3 x 1.5 mm <sup>2</sup>		max. 2 A per zone
	Trouble input cooling	24 V	24 V		per zone
	Collective trouble indicator	volt-free max. 230 V	3 x 1.5 mm <sup>2</sup>		max. 2 A per zone
	Power supply for AdiaVent®	3 x 400 V	5 x 2.5 mm <sup>2</sup>	o	for each AdiaVent® unit
Variant: Zone control panel 1-phase	Power supply	1 x 230 V	3 x ... mm <sup>2</sup>		
	novaNet system bus	12 V	2 x 0.16 mm <sup>2</sup>		for bus cable specifications, see Part D, Ch. 2.4
	Room air sensor	10 V	2 x 1.5 mm <sup>2</sup>		max. 170 m
	Fresh air sensor	10 V	2 x 1.5 mm <sup>2</sup>		max. 170 m
	Enable cooling	volt-free max. 230 V	3 x 1.5 mm <sup>2</sup>		max. 2 A per zone
	Trouble input cooling	24 V	24 V		per zone
	Collective trouble indicator	volt-free max. 230 V	3 x 1.5 mm <sup>2</sup>		max. 2 A per zone

Table B7-1: Cable list

# Specification texts

## 8 Specification texts

### 8.1 AdiaVent® ADV

Self-supporting, weatherproof Aluzinc sheet steel housing, internally insulated (fire protection class B1), with access door for easy access to filter, DigiUnit terminal box and humidifier, with access panel for easy access to fans, and isolation switch on the outside for cutting off high-power current.

AdiaVent® comprises:

- Supply air filter (bag filter, class G4) with differential pressure switch for filter monitoring
- Process air filter (bag filter, class F5) with differential pressure switch for filter monitoring
- 2 aluminium plate heat exchangers
- Maintenance-free, direct-drive supply air fan
- maintenance-free, direct-drive process air fan
- Humidifier with humidifier pump
- Humidifier circuit with valve
- DigiUnit terminal box with DigiUnit controller as a part of the Hoval DigiNet regulation system

#### DigiUnit Controller DU5

Control module, fully wired to the components of the ventilation unit (fans, temperature sensors, valves, humidifier pump, filter pressure switch):

- controls the AdiaVent® unit according to the individual control zone commands
- Controls the supply air temperature using cascade control

#### High-voltage section

- Mains power terminals
- Isolation switch (can be operated from the outside)
- Motor contactor for each fan
- Fuse for the electronics
- Transformer for the DigiUnit controller and the valves
- Connection terminals for temperature sensors
- Terminal box heating

Type	ADV - 6 / DN5
Nominal air flow rate	6080 m³/h
Power consumption	3 kW
Supply voltage	AC 3 x 400 V
Frequency	50 Hz
Fresh air	___ °C / ___ %
Supply air	___ °C
Cooling capacity	___ kW

### 8.2 Options

#### ■ Fresh air box AUK

- Insulated Aluzinc sheet steel housing
- Fresh air damper with actuator
- Fresh air filter, class F7 with differential pressure switch for filter monitoring

#### ■ Ultraviolet lamp UVL

- Ultraviolet lamp with incorporated electronics
- Power intake < 40 W

#### ■ Supply air filter ZF5

- Supply air filter, class F5 instead of class G4

#### ■ Paint finish AL-ADV

- Paint finish as desired

### 8.3 Control system

Digital control system for the energy-optimised operation of decentralised indoor climate systems:

- System set up according to OSI reference model
- Onsite connection to the individual control modules using novaNet system bus in a free topology (by electrical installer)
- Cross communication with equal priority (peer-to-peer/multiplier) using novaNet log
- Fast reaction times due to data transmission on an events basis
- Control modules pre-addressed in the factory with integrated lightning protection and battery-buffered RAM modules
- No onsite engineering (binding) required

#### ■ DigiNet operator terminals

##### DigiMaster DM5

Preprogrammed Plug-&-Play operator terminal with graphic user interface consisting of a touch panel with colour display, installed in the door of the zone control panel.

- Monitoring and setting the DigiNet system (operating modes, temperature values, scheduler, calendar, alarm handling, control parameters)

##### DigiCom DC5

Package consisting of operating software, novaNet router and connection cables for using the Hoval DigiNet with a PC:

- Monitoring and setting the DigiNet system (operating modes, temperature values, scheduler, calendar, alarm

# Specification texts

- handling and forwarding, control parameters)
- Trend function, data storage and logbook
- Differentiated password protection

## Options

- Window for DigiMaster
- IP65 framework
- novaNet socket
- novaNet router

## ■ **DigiNet zone control panel**

The zone control panel (coated sheet steel, RAL 7035) contains:

- 1 fresh air sensor
- 1 transformer 230/24 V
- 2 circuit breakers for transformer (1-pin)
- 1 relay
- 1 safety relay (2-pin, external)
- Input and output terminals (top)
- 1 wiring diagram of the system
- 1 DigiZone controller, 1 relay and 1 room air sensor (included) for each control zone

## DigiZone controller DZ5

Control unit for each control zone, integrated in the zone control panel:

- Processes the room and fresh air temperature inputs, as well as special functions (optional)
- Controls the operating modes according to the scheduler
- Sets the outputs for the 'enable cooling' requirement message and the collective trouble indicator

## Options

- Alarm lamp
- Socket
- 2-pin circuit breakers
- Room temperature average value

**Hoval****Konformitätserklärung****Déclaration de  
conformité****Dichiarazione di  
conformità****Declaration of  
Conformity**

Wir erklären hiermit, dass  
die Produkte

Par la présente, nous déclarons  
que les produits

Con la presente dichiariamo, che  
i prodotti

We herewith declare that  
the products

Umluftgerät

Appareil de recyclage

Apparecchio per ricircolo d'aria Recirculation Unit

AdiaVent® ADV

AdiaVent® ADV

AdiaVent® ADV

AdiaVent® ADV

mit den folgenden europäischen  
Richtlinien übereinstimmen:

sont conformes aux directives  
européennes suivantes:

sono conformi alle seguenti direttive  
europee:

are in conformity with the following  
directives:

<b>Maschinen</b> 98/37/EG	<b>Machines</b> 98/37/CE	<b>Macchine</b> 98/37/CE	<b>Machinery</b> 98/37/EC
<b>Elektromagnetische Verträglichkeit (EMV)</b> 2004/108/EG	<b>Compatibilité électromagnétique (CEM)</b> 2004/108/CE	<b>Compatibilità elettromagnetica (CEM)</b> 2004/108/CE	<b>Electromagnetic Compatibility (EMC)</b> 2004/108/EC
<b>Niederspannung</b> 2006/95/EG	<b>Basse tension</b> 2006/95/CE	<b>Bassa tensione</b> 2006/95/CE	<b>Low Voltage</b> 2006/95/EC

Angewandte harmonisierte Normen:  
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Normes harmonisées appliquées:  
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Norme armonizzate applicate:  
(Ente certificatore)

Applied harmonised standards:  
(Notified body)

<b>Maschinen</b>	<b>Machines</b>	<b>Macchine</b>	<b>Machinery</b>
<b>EN ISO 12100-1:2003; EN ISO 12100-2:2003; EN ISO 14121-1:2007; EN ISO 13857:2008</b>			
<b>EMV</b>	<b>CEM</b>	<b>CEM</b>	<b>EMC</b>
<b>EN 61000-6-2:2005; EN 61000-6-3:2007</b>			
<b>Niederspannung</b>	<b>Basse Tension</b>	<b>Bassa tensione</b>	<b>Low Voltage</b>
<b>EN 60204-1:2006; EN 60335-1:2002</b>			

Wir erklären, dass das bezeichnete  
Produkt als selbständiges Gerät den  
oben angeführten Normen,  
Richtlinien bzw. technischen  
Spezifikationen entspricht.

Nous déclarons que le produit  
désigné, à titre d'appareil autonome,  
répond aux normes, directives et/ou  
spécifications techniques  
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Noi dichiariamo, che il prodotto citato,  
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Bei einer nicht mit uns abgestimmten  
Änderung des Produktes verliert  
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Bedienungsanleitung sind zu  
beachten.

En cas de modification du produit  
sans notre accord, cette déclaration  
devient caduque. Il y a lieu de tenir  
compte des directives de sécurité  
mentionnées dans la documentation,  
le mode d'emploi et les instructions  
de service.

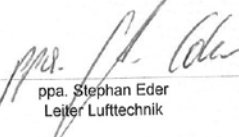
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**Hersteller  
Fabricant  
Produttore  
Manufacturer**  
Vaduz - 02.09.2008

**Hovalwerk AG  
Austrasse 70  
LI - 9490 Vaduz**

  
Fabian Frick  
CEO Lufttechnik, neue Märkte

  
ppa. Stephan Eder  
Leiter Lufttechnik



## Options

C

- 1 Fresh air box AUK \_\_\_\_\_ 26
- 2 Ultraviolet lamp UVL \_\_\_\_\_ 27
- 3 Paint finish AL-ADV \_\_\_\_\_ 27
- 4 Aftercooler \_\_\_\_\_ 27
- 5 Supply air filter ZF5 \_\_\_\_\_ 27

# Options

## 1 Fresh air box AUK

The AdiaVent® with fresh air box can be operated as an air mixing unit. It can be adjusted to take in a proportion of up to 20% fresh air.

The fresh air box is connected to the extract air duct and comprises:

- Fresh air damper with actuator
- Fresh air filter (Class F7) with filter monitoring

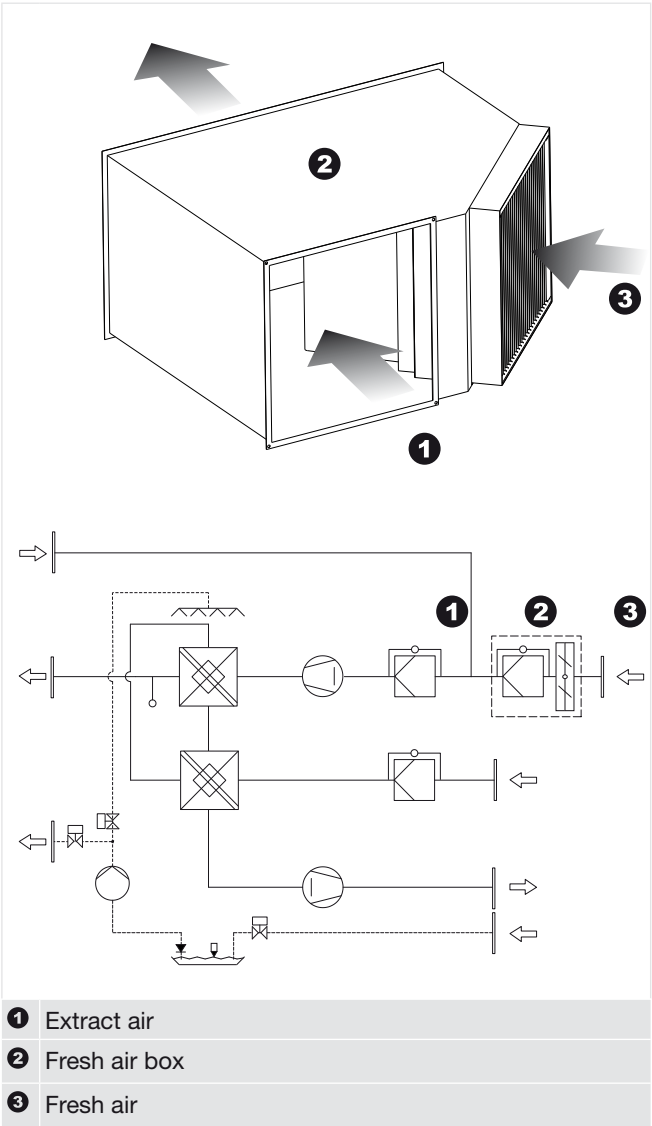


Fig. C1-1: Operational diagram

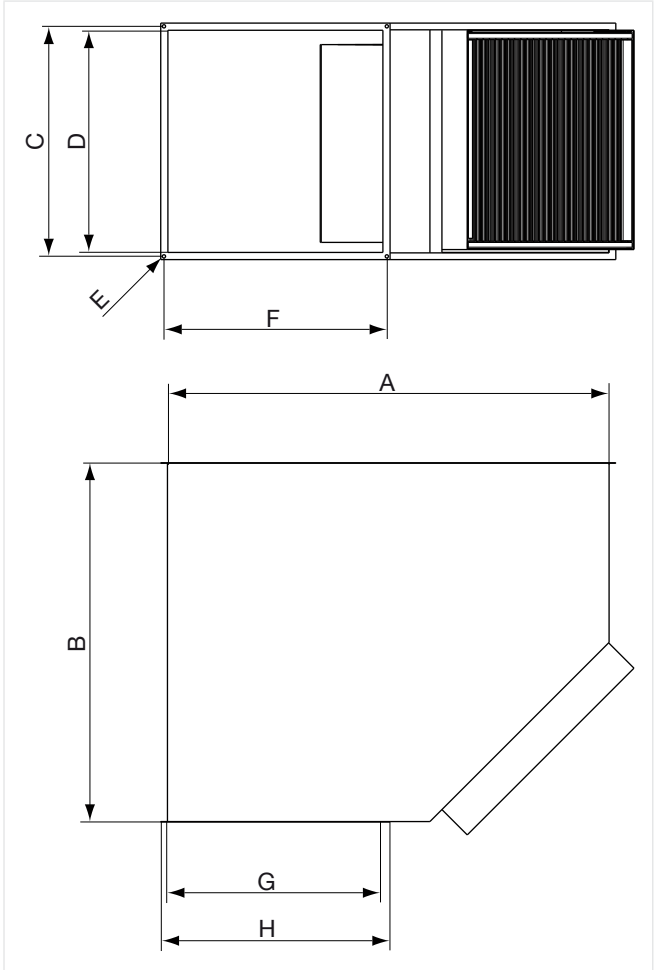


Fig. C1-2: Dimensions and technical data

Unit type			AUK-6
Dimensions	A	mm	1231
	B	mm	1000
	C	mm	642
	D	mm	620
	E	mm	9.1
	F	mm	622
	G	mm	599
	H	mm	640
Weight		kg	76
Filter			F7

Table C1-1: Technical data

# Options

## 2 Ultraviolet lamp UVL

In the AdiaVent® operating mode Cleaning the humidifier circuit routinely cleans and sterilises itself. In cases of extreme pollution through environmental factors, a constant sterilisation by means of the ultraviolet lamp may be necessary.

## 4 Aftercooler

If constant cooling capacities are required, an aftercooler can be integrated in the supply air duct. Your Hoval advisor will gladly provide you with any further information you may need.

## 3 Paint finish AL-ADV

Upon request, AdiaVent® units (standard Aluzinc) may be painted. Indicate the desired RAL number on your order.

## 5 Supply air filter ZF5

A class G4 supply air filter is installed as standard. If air is extracted from and blown into different rooms, or in cases of heavily polluted air, a class F5 supply air filter must be installed.



### Notice

Because of the additional pressure drop the output figures of the AdiaVent® unit will decrease.

Air flow rate

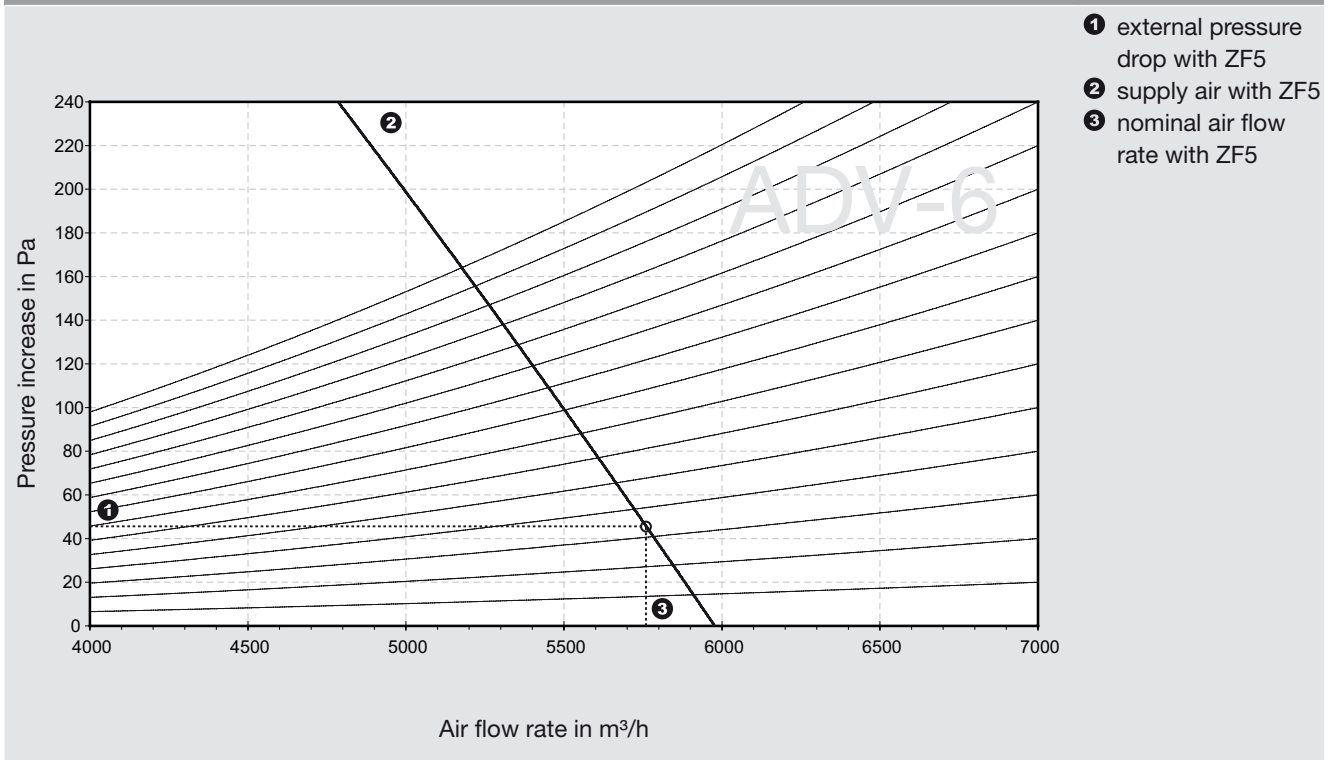
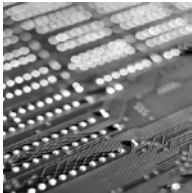
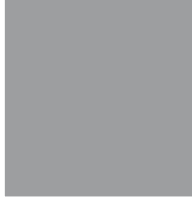


Diagram C4-1: Air flow rate with ZF5 option







## Control system

D



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2 System setup	30
3 Operating options	31
4 Zone control panel	33
5 Control components in the units	34
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# Control system

## DigiNet 5

### 1 General information

Hoval's DigiNet is a control system that was specially developed for decentralised indoor climate units. The system was developed together with Fr. Sauter AG, a company also supplying the hardware components.



#### Notice

This chapter, 'Control system' refers only to the AdiaVent®-unit. In the case of a combination of units, please observe the respective design handbooks of the selected units.

### 2 System setup

Hoval's DigiNet is divided into three hierarchical levels that are connected by a novaNet system bus.

#### 2.1 Operational level

This is where the user operates the system. Different operational options are available according to project-specific requirements.

#### 2.2 Zone level

AdiaVent® units operating under the same conditions are grouped into control zones. The criteria concerning how the zones are created can be, for example, operating times, room temperature set values and so on. In the zone control panel there is a DigiZone controller system for each control zone. There is one DigiZone controller for each control zone in the zone control panel.

Control zones	max. 10
Units per control zone	max. 9

Table D2-1: Application limits of Hoval DigiNet



#### Notice

For larger projects, special solutions may be possible.

#### 2.3 Unit level

In every AdiaVent® unit there is a DigiUnit controller, which controls the unit individually in accordance with the local conditions.

#### 2.4 novaNet system bus

The individual Hoval DigiNet components are connected via a novaNet system bus (analogously to the OSI layer model). Data transfer takes place in an event-oriented manner, this reduces data traffic and ensures short reaction times.

Cable type	1 pair of wires, drilled, shielded category 5 or above
Topology	free (star, ring, tree structure)
Length	max. 1900 m For longer bus lengths: Include a repeater or divide the system into several networks.
Communication	Cross communication with equal priority (peer-to-peer / multiplier)
Loop resistance	max. 300 Ω
Capacity	max. 200 nF

Table D2-2: novaNet system bus specifications

#### Example – bus cable

Type	Uninet 5502 4P
Dimension (n x n x mm <sup>2</sup> )	4 x 2 x 0.16 (AWG 26)
Loop resistance at 20 °C	160 Ω/km
Operating capacity	44 pF/m
Use	Category 5e / class D
Properties	Shielded, halogen-free

# Control system

## DigiNet 5

### 3 Operating options

#### 3.1 DigiMaster operator terminal

The DigiMaster is a touch panel with a colour display, making it simple to operate the system. It gives trained users access to all information and settings that are necessary for normal operation:

- Display and set operating modes
- Display temperatures and set room temperature set values
- Display and program the scheduler and the calendar
- Display and handle alarms
- Display and set control parameters

The DigiMaster is installed in the door of the zone control panel.

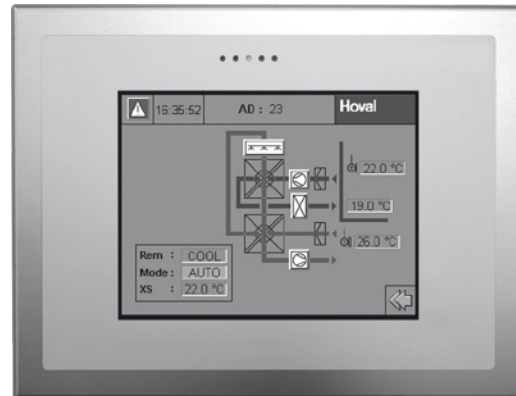


Fig. D3-1: Operation via Touchpanel with the DigiMaster

Power supply	
Supply voltage	AC 230 V, 50 Hz
Permitted voltage tolerance	+10 % / -15 %
Rated power input	max. 7 W
Communication	
1x RJ-11 jack	novaNet
1x RJ-45 jack	Ethernet 10 Base T (application download)
Environmental conditions	
Ambient temperature	0...45 °C
Storage and transport temperature	-25...70 °C
Ambient humidity	10...80 % rh without condensation
Protection level	IP 20 optional: IP 65 on the front
Protection class	II
Environment class	IEC 60721 3k3
Dimensions	
W x H x D	240 x 156 x 46 mm
Active surface (W x H)	140 x 105 mm

Table D3-1: DM5 DigiMaster technical data



Fig. D3-2: DigiMaster installed in the door of the zone control panel (shown here with window for DigiMaster)

# Control system

## DigiNet 5

### 3.2 Operation using PC and DigiCom

The system can be operated easily using a PC and DigiCom. The operating software clearly displays the system on the PC. It offers the following functions to competent users:

- Display and set operating modes
- Display temperatures and set room temperature set values
- Display and program the scheduler and the calendar
- Display and handle alarms and maintain an alarm log
- Display and set control parameters
- Trend function for the graphic display of current data
- Display tables and graphics of historic data
- Logbook for logging all system actions
- Differentiated password protection

The DigiCom package consists of the operating software, the novaNet router and the connection cables.

### 3.3 Integration with management level with DigiBac

An automation station with BACnet communication card – known as DigiBac – allows you to integrate the Hoval DigiNet at management level. Communication takes place over BACnet/IP on an Ethernet basis.

For detailed information about integrating with the management level, contact Hoval customer service.

### 3.4 Remote control over the internet using DigiWeb

The DigiWeb web server allows you to access Hoval DigiNet systems over the Internet. Remote control is possible from any PC with an Internet browser. A novaNet router is required to connect to the DigiNet system.

For detailed information about remote control, contact Hoval customer service.



Fig. D3-3:  
Operation via PC

Hardware	
Processor	Intel Pentium III 800 MHz
Main memory	256 MB
Hard disk	9 GB
DVD drive	yes
Interfaces	1 USB, 1 serial, 1 mouse
Software	
Operating system	Windows NT4 SP6a, 2000 or XP

Table D3-2: Requirements of PC used

# Control system

## DigiNet 5


### 4 Zone control panel

Hoval indoor climate units are summarised into control zones, which are controlled from the zone control panel. The DigiZone controller:

- controls operating modes,
- transmits the fresh air and room temperature to the individual units,
- sets the outputs for the "enable cooling" requirement message and the collective trouble indicator.

For each panel
1 Fresh air temperature sensor (cable length max. 170 m)
1 Transformer 230/24 V
2 Circuit breakers for transformer (1-pin)
1 Relay
1 Safety relay (2-pin, external)
Connecting terminals for:
<ul style="list-style-type: none"> <li>• Fresh air sensor</li> <li>• Mains supply</li> </ul>
For each control zone
1 DigiZone controller
1 Room air sensor (included)
1 Relay
Connecting terminals for:
<ul style="list-style-type: none"> <li>• Room air sensor</li> <li>• Enable cooling</li> <li>• Trouble input cooling</li> <li>• Collective trouble indicator</li> <li>• novaNet system bus</li> </ul>

Table D4-1: Content of the zone control panel



**Attention**

Danger from electric current. Ensure that overcurrent protection equipment is installed onsite for the power supply cable.



Fig. D4-1: A look in the zone control panel

Design	
Control panel	Coated sheet steel (RAL No. 7035)
Short circuit resistance I <sub>CW</sub>	10 kA <sub>eff</sub>
Connecting terminals	Top
Installation	Floor or wall installation
Environmental conditions	
Use	Indoors
Ambient temperature	5...40 °C
Storage and transport temperature	-25...55 °C
Ambient humidity	max. 50 % rh at 40 °C max. 90 % rh at 20 °C

Table D4-2: Technical data of the zone control panel

Size	Type	Dimensions in mm (W x H x D)		
1	SDZ1	380	x	600 x 210
2	SDZ2	600	x	600 x 210
3	SDZ3	600	x	760 x 210
4	SDZ4	760	x	760 x 210
5	SDZ5	800	x	1000 x 300
6	SDZ6	800	x	1200 x 300
7	SDZ7	800	x	1800 x 400
8	SDZ8	1000	x	1800 x 400
9	SDZ9	1200	x	1800 x 400

Table D4-3: Available sizes and dimensions of zone control panel

# Control system

## DigiNet 5

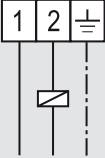

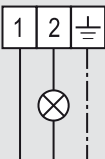
<b>Enable cooling</b> Floating signal, transmitting the cooling demand to the onsite refrigeration system	 <p>3 x 1.5 mm<sup>2</sup> max. AC 230 V, 2 A</p>
<b>Trouble input cooling</b> Trouble indicator input signal which informs DigiNet that the cold supply is not working	 <p>3 x 1.5 mm<sup>2</sup> AC 24 V</p>
<b>Collective trouble indicator</b> Floating signal for the external display of a collective alarm	 <p>3 x 1.5 mm<sup>2</sup> max. AC 230 V, 6 A</p>

Table D4-4: External connections

### 5 Control components in the units


In every AdiaVent® unit the following is installed:

- A DigiUnit terminal box (with DigiUnit controller and high-voltage section)

The DigiUnit controller regulates the individual unit according to the settings of the control zone and regulates supply air temperature by means of cascade control.

The high-voltage section contains:

- Mains power terminals
- Isolation switch (can be operated from the outside)
- Motor contactor for each fan
- Fuse for the electronics
- Transformer for the DigiUnit controller, valves and actuating drives
- Relays for emergency operation
- Connecting terminals for actuators and temperature sensors
- Terminal box heating



**Attention**

If the power supply for the DigiUnit terminal box is interrupted, frost protection and monitoring are not guaranteed. You can only tell that a DigiUnit controller has broken down because it is no longer displayed on the operator terminal. You should therefore check regularly that the display is complete.

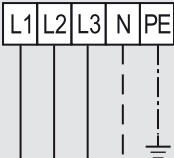
<b>Design</b>	
Terminal box, coated sheet steel	
Cover screwed down	
Protection level	IP65
<b>Power supply</b>	
Supply voltage	 <p>3 x AC 400 V 50 Hz</p>
Permitted voltage tolerance	±10 %
Power consumption	see 'Technical data' chapter
AdiaVent® ADV-6 pre-fuse	T 20 A

Table D5-1: Technical data of the DigiUnit terminal box



# Control system

## DigiNet 5

### 6 Options

#### 6.1 Options for operating DigiNet

##### ■ Window for DigiMaster FDM

The window for DigiMaster (350 x 400 mm) protects the DigiMaster that is integrated in the panel door from unauthorized use and dirt. It consists of an aluminium anodised framework with a seal and a lock.

##### ■ IP65 framework

The IP65 framework is used to integrate the DigiMaster in the panel door and to make it water and dust-proof. It guarantees a front-side protection level of IP 65.

##### ■ novaNet socket NS

The novaNet socket is used to connect a DigiCom easily to the novaNet system bus. The plastic housing contains two RJ-11 jacks and the terminals for wiring the bus input.

##### ■ novaNet router NR5

The novaNet router is used to connect an operator PC to the novaNet system bus via a COM interface or modem.

#### 6.2 Options for the zone control panel

##### ■ Alarm lamp SSL

A lamp for displaying alarms of priority A is installed in the door of the zone control panel.

##### ■ Socket SST

A 1-phase socket with a 2-pin circuit breaker is installed in the zone control panel. This socket serves for connecting maintenance tools. Its circuit is not cut out by the safety relay.

##### ■ 2-pin circuit breaker 2PS

The circuit breakers for the transformer have two pins.

##### ■ Power supply SIA

The power supply for AdiaVent® units is integrated in the zone control panel in those units with DigiUnit controller installed.

The following are integrated in the panel:

- The necessary circuit breakers and output terminals for each unit

- The safety relay (external)

The size of the safety relay depends on the rated current. It replaces the zone control safety relay.

Type	Power supply
SIA3	with 3-pin circuit breakers
SIA4	with 4-pin circuit breakers

Table D6-5: Power supply

Rated current <sup>1)</sup>	Type 3-pin	Type 4-pin
0 – 25 A	NT-3/40	NT-4/40
26 – 35 A	NT-3/60	NT-4/60
36 – 50 A	NT-3/80	NT-4/80
51 – 65 A	NT-3/100	NT-4/100
66 – 75 A	NT-3/125	NT-4/125
76 – 100 A	NT-3/160	NT-4/160
101 – 155 A	NT-3/250	NT-4/250

<sup>1)</sup> = Nominal current consumption of all indoor climate units in the system

Table D6-6: Size of circuit breakers, without neutral wire switch-off (3-pin) and with neutral wire switch-off (4-pin)

##### ■ Room temperature averaging MRT

Instead of only one room air sensor, four sensors are delivered to provide the average value; the corresponding connecting terminals are integrated.

# Control system

## DigiNet 5

### 7 Alarms and monitoring

The Hoval DigiNet monitors itself. All alarms are entered in the alarm list and displayed on the operator terminals. Alarms of priority A are also displayed using the collective trouble indicator.



#### Attention

If the power supply for the DigiUnit terminal box is interrupted, frost protection and monitoring are not guaranteed. You can only tell that a DigiUnit controller has broken down because it is no longer displayed on the operator terminal. You should therefore check regularly that the display is complete.

Alarm	Priority	Cause	System reaction	Benefit
Frost	A	The fresh air temperature has fallen under 5 °C.	<ul style="list-style-type: none"> <li>The affected AdiaVent® unit switches to the operating mode 'off'.</li> <li>The water tank is emptied.</li> </ul>	Avoids frost damage.
Supply air fan	A	The supply air fan is overheated.	The affected AdiaVent® unit switches to the operating mode 'off'.	Prevents damage to the motor.
Process air fan	A	The process air fan is overheated.	The affected AdiaVent® unit switches to the operating mode 'off'.	Prevents damage to the motor.
Humidifier pump	A	The pump motor is overheated.	The affected AdiaVent® unit switches to the operating mode 'off'.	Prevents damage to the motor.
Overflow	A	The water tank is full to overflowing.	<ul style="list-style-type: none"> <li>The affected AdiaVent® unit switches to the operating mode 'off'.</li> <li>The water tank is emptied.</li> <li>AdiaVent® restarts automatically.</li> </ul>	Avoids malfunctions.
Fresh air sensor	A	The fresh air sensor is malfunctioning.	<ul style="list-style-type: none"> <li>The affected AdiaVent® unit switches to the operating mode 'off'.</li> <li>The water tank is emptied.</li> </ul>	Avoids interruptions of operation.
Dry run	B	The water tank is empty.	<ul style="list-style-type: none"> <li>The affected AdiaVent® unit switches to the operating mode 'off'.</li> <li>The water tank is filled.</li> <li>AdiaVent® restarts automatically.</li> </ul>	Prevents damage to the motor.
Room air sensor	B	The room air sensor is malfunctioning.	The DigiNet continues to work with the set value as the room temperature until the error is corrected.	Avoids interruptions of operation.
Supply air sensor	B	The supply air sensor is malfunctioning.	DigiNet continues operating with a supply air temperature of 20 °C until the fault is eliminated.	Avoids interruptions of operation.
Revision	B	The isolation switch remains in the "Off" position for more than 30 min.	–	Avoids unintentional switching off.
Filter	B	The filter is contaminated.	–	Informs the user of the necessity of maintenance work.

Table D7-1: Alarms in Hoval DigiNet

**Hoval****Konformitätserklärung****Déclaration de  
conformité****Dichiarazione di  
conformità****Declaration of  
Conformity**

Wir erklären hiermit, dass  
die Produkte

Par la présente, nous déclarons  
que les produits

Con la presente dichiariamo, che  
i prodotti

We herewith declare that  
the products

Steuerung/Regelung

Commande/régulation

Commando/regolazione

Control/regulation

**DigiNet  
DN**

**DigiNet  
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**DigiNet  
DN**

mit den folgenden europäischen  
Richtlinien übereinstimmen:

sont conformes aux directives  
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sono conformi alle seguenti direttive  
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are in conformity with the following  
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2004/108/EG**

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(CEM)  
2004/108/CE**

**Compatibilità elettromagnetica  
(CEM)  
2004/108/CE**

**Electromagnetic Compatibility  
(EMC)  
2004/108/EC**

**Niederspannung  
2006/95/EG**

**Basse tension  
2006/95/CE**

**Bassa tensione  
2006/95/CE**

**Low Voltage  
2006/95/EC**

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Applied harmonised standards:  
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EMV	CEM	CEM	EMC
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Niederspannung	Basse Tension	Bassa tensione	Low Voltage
EN 60204-1:2006; EN 60335-1:2002			

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mentionnées ci-dessus.

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Bei einer nicht mit uns abgestimmten  
Änderung des Produktes verliert  
diese Erklärung ihre Gültigkeit. Die  
Sicherheitshinweise in der  
Dokumentation, Betriebs- und  
Bedienungsanleitung sind zu  
beachten.


En cas de modification du produit  
sans notre accord, cette déclaration  
devient caduque. Il y a lieu de tenir  
compte des directives de sécurité  
mentionnées dans la documentation,  
le mode d'emploi et les instructions  
de service.

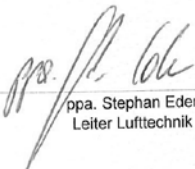
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Produttore  
Manufacturer**  
Vaduz - 02.09.2008

**Hovalwerk AG  
Austrasse 70  
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Fabian Frick  
CEO Lufttechnik, neue Märkte

  
ppa. Stephan Eder  
Leiter Lufttechnik





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- 3 Hydraulic connection \_\_\_\_\_ 40
- 4 Duct connection \_\_\_\_\_ 41
- 5 Lightning protection system \_\_\_\_\_ 41
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System design



# System design

## 1 Base

For the installation of the AdiaVent® unit a base is required. Please consider the following in the design process:

- Access doors and access panels, air intake and exhaust air grille must be freely accessible.
- The base must be perfectly flat and level (with a maximum inclination of 1%).
- The load-bearing capacity of the base are to be in accordance with Table B3-6: 'Dimensions and weight of the AdiaVent® ADV'.
- Base: borehole diagram:

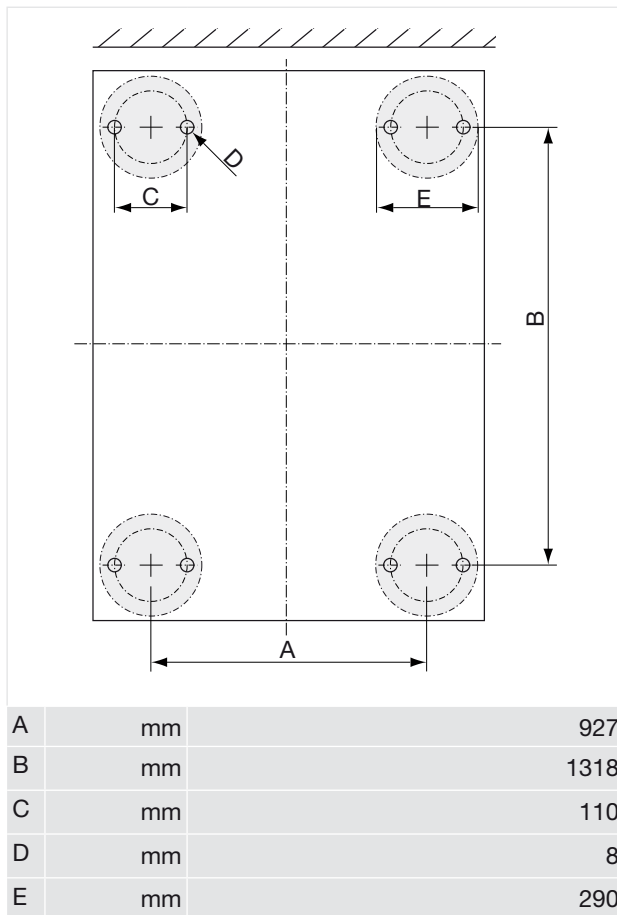


Fig. E1-1: Base: borehole diagram

- Minimum distances (see 'Technical data' chapter) must be observed.
- The included dowels are hard-designed for torn and untorn concrete and natural stone.
- Compliance with the dimension 'E' is required to avoid concrete and edge blowouts.

## 2 Location of the temperature sensors

### 2.1 Room air sensor

Install the sensor at a height of about 1.5 m at a representative location in the occupied area. Its measured values must not be distorted by the presence of sources of heat or cold (machines, direct sunlight, windows, doors, etc.). Normally there is one room air sensor per control zone. It is also possible to install 4 sensors in order to provide an average value.

### 2.2 Fresh air sensor

Install the sensor at least 3 m above the floor on a north facing wall so that it is protected from direct sunlight. Protect the sensor and thermally insulate it from the building. Only one fresh air sensor is needed per system.

### 2.3 Supply air sensor

A supply air sensor is provided. Upon commissioning the supply air sensor is installed.

## 3 Hydraulic connection

When making the connection to the water system observe the following:

- Protect the water pipes against freezing.
- The water pipes must have a minimum interior diameter of 1/2".
- Ensure a permanent water supply and drainage.

# System design

## 4 Duct connection

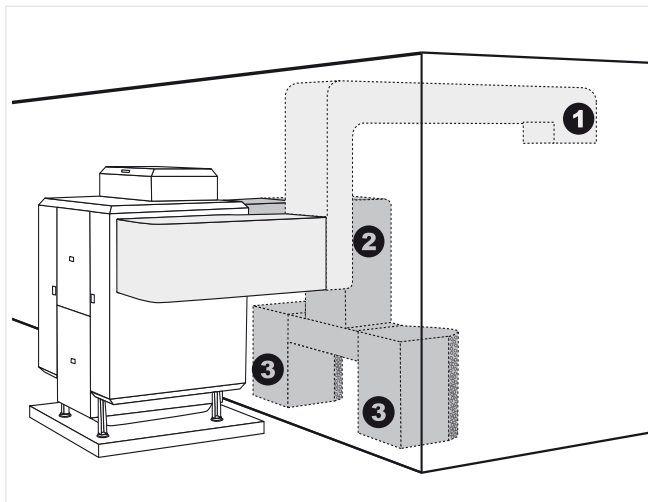
Note the following with regard to the extract air and supply air ducts:

- Insulate external ducts.
- Install air extraction opening above work area (approx. height 3-4 m).
- Provide diffuser air outlets to avoid draughts.



### Caution

Risk of illness through exposure to draughts.  
The air diffuser must be designed according to the air flow rate and the maximum permissible speed of the air.



- ❶ Extract air duct
- ❷ Supply air duct
- ❸ Diffuser air outlet

Fig. E3-1: Example duct connection

## 5 Lightning protection system

Make sure you obtain professional planning and design of a lightning protection system for the units and/or for the entire building.

## 6 Socket

For maintenance work, a socket (1-phase, AC 230V, 50 Hz) can be installed in AdiaVent® next to the DigiUnit terminal box.

## 7 General checklist

- Are base and roof strong enough to support the units?
- Is there enough space in the area around the AdiaVent® unit for servicing and maintenance work?
- Are the access doors and access panels accessible without hindrance?
- Has frost protection been provided for the water piping?
- Is the air volume balanced?
- Is it possible to drain completely the water piping system?
- Are the application limits being complied with?
- Are unit options required?
- Are control system options required?
- How are the control zones subdivided?
- Which operating options are to be used?
- Where are the operating options to be located and disposed?







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## Operation

# Operation

## 1 Operation

### 1.1 Commissioning



#### Attention

Risk of property damage from commissioning on one's own authority. Commissioning to be performed by Hoval customer service only!

Checklist to prepare for commissioning:

- Have all the connections to utilities been made (electric cabling, water piping and air duct connections)?
- Are all control components installed and connected to the novaNet system bus?
- Are all of the respective maintenance groups (installer, electrician, designer, etc.) present at the scheduled time?
- Are the system operating personnel present for training at the scheduled time?

### 1.2 Operation

The system runs fully automatically in accordance with the operating times and temperature conditions.

When operating observe the following:

- Operating instructions of the DigiNet operator terminals.
- Check alarm displays daily.
- Correct changes to operating times in the automatic programming.
- Ensure free air outlet and unhindered dispersion of the supply air.
- Should there be a water leakage shut off the AdiaVent® unit and contact Hoval Customer Service .

### 1.3 Decommissioning



#### Attention

Risk of property damage from frost. When decommissioning take adequate measures to protect the humidifier circuit against frost damage.

- Clean AdiaVent®.
- Turn off mains water supply.
- Turn isolation switch (Pos. ④) to the 'off' position and wait until the fans stop running.
- Open the DigiUnit terminal box access door (Pos. ②).
- Empty the humidifier pump (Pos. ③).

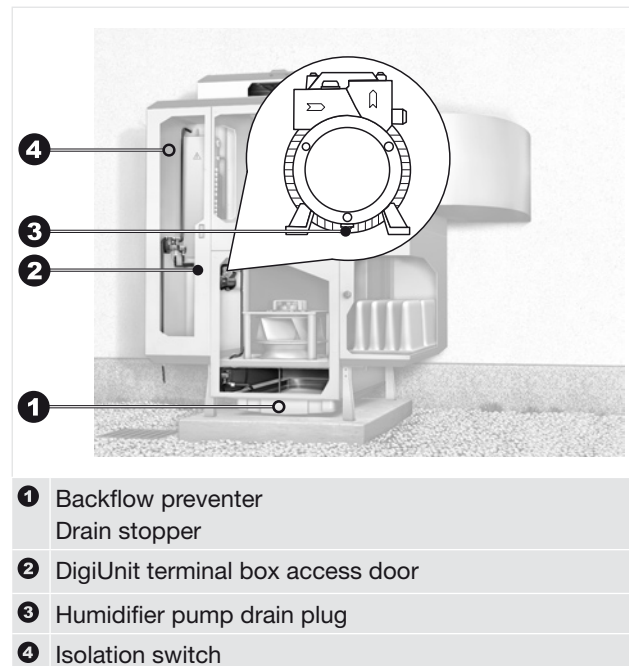


Fig. F1-1: empty humidifier pump

- Check whether water is still present in the humidifier circuit; if necessary drain it.



#### Notice

Unlock the backflow preventer (Pos. ①).

- Empty the water tank via drain stopper.
- Close the DigiUnit terminal box access door (Pos. ②).
- Switch the isolation switch to the 'On' position (Pos. ④).
- AdiaVent® is now out of operation.

# Operation

## 1.4 Putting in operation again

- Switch the isolation switch to the 'Off' position and wait for the fans to stop (Pos. ❸).
- Open the DigiUnit terminal box access door (Pos. ❶).
- Fill the humidifier pump (Pos. ❷).

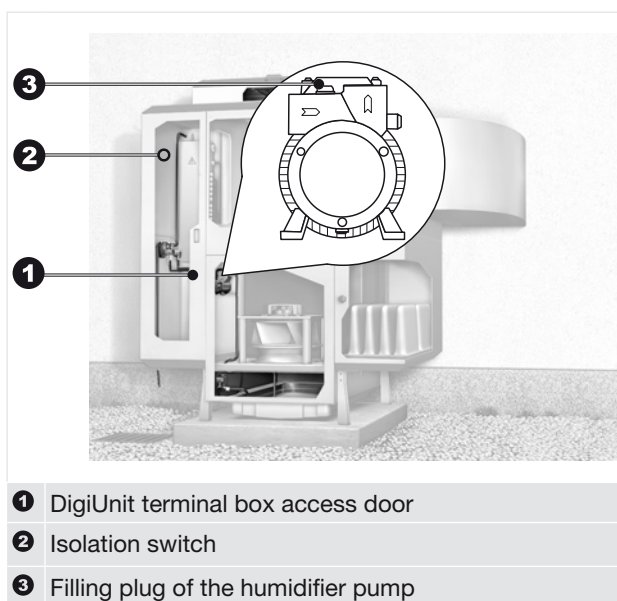


Fig. F1-2: Filling the humidifier pump

- Close the DigiUnit terminal box access door (Pos. ❶).
- Switch the isolation switch to the 'On' position (Pos. ❷).
- Turn on water supply.
- Select operating mode 'COOL' at control terminal.
- AdiaVent® is now in operation.

## 2 Maintenance and repair

### 2.1 Safety during maintenance

- Before undertaking any work on the unit: turn the isolation switch to the 'off' position. Wait for the fans to stop.
- Observe the accident prevention regulations.
- Maintenance work to be carried out by trained personnel only.
- Observe the particular dangers involved in working on the roof and on electrical systems.
- When working in the unit, take precautions against unprotected, sharp steel plate edges.
- Secure doors and doors against inadvertent closing.
- Immediately replace damaged or removed informational and warning signs.
- Following maintenance work, professionally reassemble all dismantled protective devices.
- Rebuilding or making changes to the unit on one's own authority are not permitted.
- Replacement parts must comply with the technical requirements of the system manufacturer. Hoval recommends the use of original replacement parts.

# Operation

## 2.2 Filter change



### Caution

Risk of poisoning from incorrect work. Filters must be replaced by qualified personnel only!

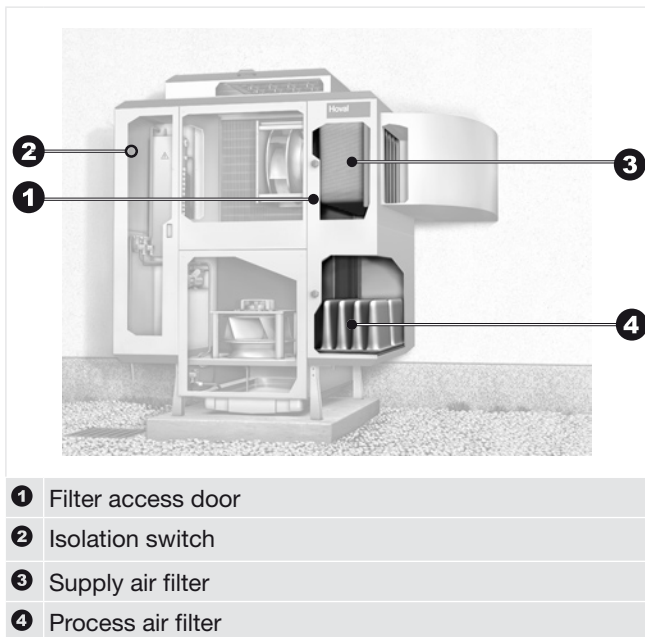


Fig. F2-1: Filter change

### ■ Changing the supply air filter

- Turn isolation switch (Pos. ②) to the 'off' position and wait until the fans stop running.
- Open filter access door (Pos. ①).
- Change the supply air filter (Pos. ③).
- Close filter access door and turn isolation switch to the 'on' position again.
- The supply air filter has been changed.

### Changing the process air filter

- Turn isolation switch (Pos. ②) to the 'off' position and wait until the fans stop running.
- Open filter access door (Pos. ①).
- Change the process air filter (Pos. ④).
- Close filter access door and turn isolation switch to the 'on' position again.
- The process air filter has been changed.

## 2.3 Cleaning the humidifier circuit

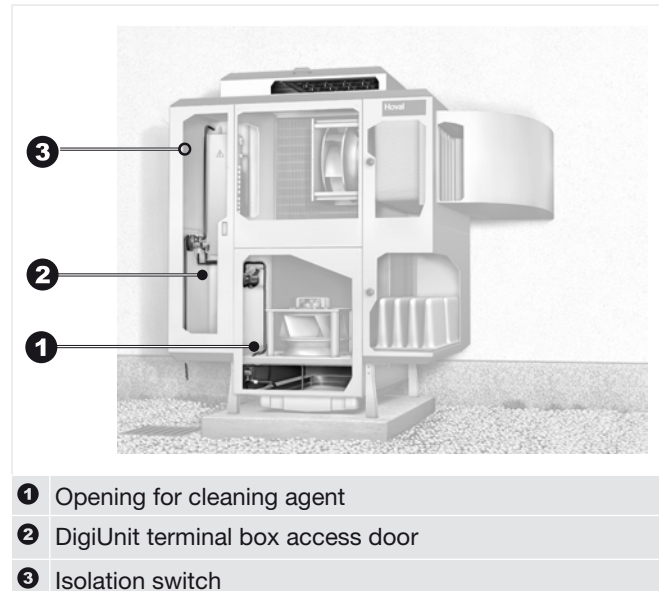


Fig. F2-2: Cleaning the humidifier circuit

- Select operating mode 'off' at control terminal.
- Isolation switch (Pos. ③) must be turned to 'off' position; then wait for fans to stop.
- Open the DigiUnit terminal box access door (Pos. ②).
- Pour the cleaning agent (700 ml) into the opening provided for this purpose (Pos. ①).
- Close DigiUnit terminal box access door and turn the isolation switch to the 'on' position again.
- Select operating mode 'CLN' at control terminal
- The AdiaVent® unit cleanses itself.

# Operation

## 2.4 Cleaning the water filter

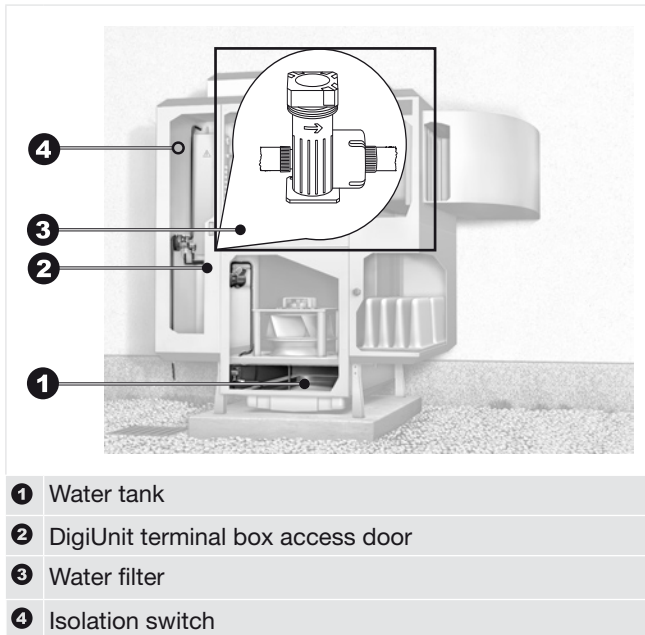


Fig. F2-3: Water filter

- Select operating mode 'off' at control terminal.
- Isolation switch (Pos. 4) must be turned to 'off' position; then wait for fans to stop.
- Open the DigiUnit terminal box access door (Pos. 2).
- Completely remove the water filter cover.
- Remove and clean the filter insert of the water filter (Pos. 3).



### Notice

With major contamination, also clean the water tank (Pos. 1).

- Reinstall water filter following the above steps in opposite order.
- Close the DigiUnit terminal box access door.
- Turn isolation switch to 'on' position.
- The water filter has now been cleaned.

## 2.5 Periodic control and maintenance work



### Caution

Danger of poisoning through failure to perform maintenance work. Perform the work within the prescribed intervals.

### ■ Filter

The AdiaVent® units are equipped with a differential pressure monitor to control the process air filter and the supply air filter. Replace the filter when the 'Filter' alarm is displayed on the operating panel.

### ■ Humidifier cycle and water filter

Clean the humidifier circuit and water filter after 300 operating hours.

### ■ Control and maintenance work performed by Hoval

The following work should be provided by Hoval customer service each year:

- The AdiaVent® unit is cleaned
- Check and adjust jet spray pattern
- Control system function test
- Operation of pump and fans checked
- Check for leakages

## 2.6 Repair

Request the visit of your Hoval Customer Service.

# Operation

## 3 Dismantling



### Caution

Risk of injury from incorrect work. Dismantling to be carried out by specialists only!

Make sure that the following items are on hand:

- a fork-lift if the unit is mounted on the facade, or a crane or helicopter if the unit is mounted on the roof
- For installation with a crane or helicopter: 4 straps (strap length approx. 10 m each; carrying power of the belts according to Table B3-6: layout dimensions and weights) and 1 safety cable

Proceed as follows:

- Put AdiaVent® out of operation.
- Remove all the connections to utilities of the unit (electric cabling, water piping and air duct connections).
- Loosen AdiaVent® from its connections to lightning protection system, mounting on base, etc.
- Secure AdiaVent® lift and remove.

## 4 Disposal

Observe the following when disposing of components from the AdiaVent®:

- Recycle metal components.
- Recycle plastic parts.
- Dispose of electric and electronic parts via hazardous waste.



# Conservation of Energy Protection of the Environment

The Hoval group with production facilities and sales offices in more than 50 countries worldwide has the above guiding principle. The company, established in 1945, is a pioneer in heating technology. Today Hoval develops and manufactures innovative solutions that maximise energy efficiency and thus help protect the environment in the following product lines:



## **Hoval Heating Technology.**

From a comprehensive range Hoval offers innovative system solutions for a variety of energy sources (oil, gas, wood, pellets and solar) as well as heat pumps. The range of performance extends from a small apartment to a tower block.



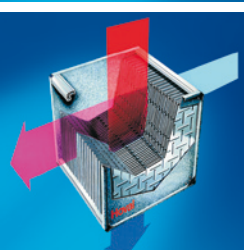
## **Hoval Residential Ventilation.**

A better atmosphere and heat energy efficiency in your own home: With the HomeVent® Hoval sets the standards in air quality for single family houses and apartments.



## **Hoval Indoor Climate Systems.**

Supply fresh air, remove extract air, heat and cool, filter and distribute air, make use of waste heat or recover cooling energy: Whatever the task may be – Hoval systems can provide a tailor-made answer with minimal design and installation outlay.



## **Hoval Heat Recovery.**

Efficient energy use through heat recovery: Hoval offers two different solutions: plate heat exchangers as a recuperative system and rotary heat exchangers as a regenerative system.

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# Hoval

Conservation of Energy – Protection of the Environment